

Targeted Teaching: Readings

Extracts from 'Targeted teaching: How better use of data can improve student learning' (2015, Goss and Hunter, Grattan Institute).

In the world's largest analysis of the factors that improve student learning, Professor John Hattie shows that the teaching strategies with the greatest impact are those that use evidence of learning to inform and improve teaching. Investing in student progress requires giving every teacher the time, tools and training to collect and use evidence to target their teaching in this way. The challenge is to embed targeted teaching in every classroom. Schools should develop a plan to collect robust evidence of student learning (what each student is ready to learn next, and how much her learning has progressed) and use this data to target teaching and track student progress over time. All teachers should target teaching in their classroom, with schools providing the time, tools and training needed to embed targeted teaching and track progress.

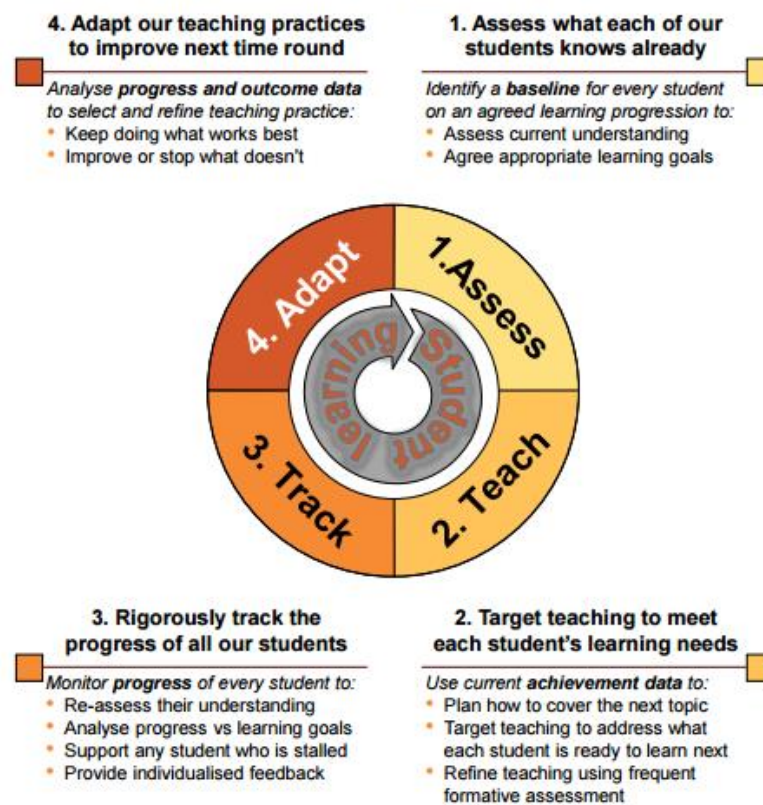
At its heart, targeted teaching is based on the collection and use of evidence of each student's learning to identify how best to advance each student. Before they teach each new topic, teachers need to understand what each student can already do and is ready to learn. As they teach, they need to check how each student is going and provide tailored feedback or more support to address obstacles or misconceptions and help each student stay on the right track. Over time, teachers also need to review and analyse student progress data. They need to see and understand the impacts of their teaching in order to be able to continuously improve it.

Teachers start by developing a clear understanding of where each student is at in his learning. Assessments, or prior evidence of learning, establish a baseline for each student. Teachers identify gaps in knowledge, set learning goals and gauge the level of support needed to advance each student. Teaching is then targeted to address what each student is ready to learn next, using teaching strategies that are supported by research. Teachers look for frequent feedback from students on the effectiveness of their teaching. They ask questions, review work and conduct other types of formative assessment in order to refine their teaching as they go.

The plan of attack should be to:

- **assess** the starting point for each student to establish a baseline, identify learning needs, set individual progress goals and gauge the support needed to meet them
- target what they **teach** to address what each student needs, refining their teaching using frequent formative assessment
- **track** each student's progress over time against individual learning goals and year-level expectations, rapidly identifying and supporting any student who stalls in her learning
- use evidence of student learning to evaluate their impact as teachers and **adapt** their practice when necessary.

Figure 5: Rigorous use of evidence supports a positive feedback loop that can improve teaching and student learning



Source: Grattan framework, which draws on research in the field, including Hattie (2009); Griffin (2014); Black and William (1998); Anderson and Scamportino (2013).

Working together

- Collaborative teaching teams and the transparency of learning data enable teachers to support each other and track student progress over time.
- Teachers share a common language of learning standards and work together to discuss evidence of student learning and teaching strategies.

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Analysis and discussion of data

A high priority is given to the school-wide analysis and discussion of systematically collected data on student outcomes, including academic, attendance and behavioural outcomes, and student wellbeing. Data analyses consider overall school performance as well as the performances of students from identified priority groups; evidence of improvement/regression over time; performances in comparison with similar schools; and, in the case of data from standardised tests, measures of growth across the years of school.

The assessment of this domain includes consideration of the extent to which:

- the school has developed and is implementing a plan for the systematic collection of a range of student outcome data including both test data and quality classroom assessments;
- the school has identified and can demonstrate that it is using tests and other assessment tools to monitor school-wide achievement and progress in areas of national focus such as literacy, numeracy, science, cross-curricular skills and attributes, and levels of student resilience, wellbeing, and social and emotional development;
- the school uses data to identify starting points for improvement and to monitor progress over time;
- arrangements have been put in place for the collection and analysis of school-wide data and for summarising, displaying and communicating data, including to parents and the school community;
- all teaching staff have access to a broad range of student achievement and wellbeing data and use it to analyse, study and display individual and cohort progress;
- professional development is provided to build staff skills in analysing and interpreting data;
- school leaders, as part of their responsibilities, regularly work with their teams to review achievement data relating to their areas;
- time is set aside for in-depth staff discussions of achievement data and of strategies for the continuous improvement of student outcomes;
- the school includes in its data gathering input and feedback from students and parents;
- the school systematically monitors other performance data, including data relating to student attendance, school disciplinary absences and other behavioural data, school completion, student destinations and stakeholder perceptions and engagement;
- data are used in building a culture of self-evaluation and reflection across the school; and
- the school uses data to inform school-level decisions, interventions and initiatives.

Outstanding

The principal and other school leaders clearly articulate their belief that reliable data on student outcomes are crucial to the school's improvement agenda. The school has established and is implementing a systematic plan for the collection, analysis and use of a range of student achievement and wellbeing data. Test data in areas such as literacy, numeracy and science are key elements of this plan.

Data are used throughout the school to identify gaps in student learning, to monitor improvement over time and to monitor growth across the years of school. A high priority has been given to professional development aimed at building teachers' and leaders' data literacy skills. Staff conversations and language reflect a sophisticated understanding of student assessment and data concepts (eg, value-added; growth; improvement; statistical significance).

Teachers are given test data for their classes electronically and are provided with, and use, software to analyse, display and communicate data on individual and class performances and progress, including comparisons of pre- and post-test results. Teachers routinely use objective data on student achievement as evidence of successful teaching.

High

There is evidence that the principal and other school leaders view reliable and timely student data as essential to their effective leadership of the school. There is a documented school plan and timetable for the annual collection of data on student achievement and wellbeing.

One or more members of staff have been assigned responsibility for implementing the annual plan, analysing the full range of school data, and summarising, displaying and communicating student outcome data for the school. The school has ensured that appropriate software is available and that at least these assigned staff have been trained to undertake data analyses.

Time is set aside (eg, on pupil free days and in staff meetings) for the discussion of data and the implications of data for school policies and classroom practices. These discussions occur at whole-school and team levels. The school can illustrate through case studies, meeting minutes and project plans how data have been used to identify priorities, take action and monitor progress.

Medium

School leaders pay close attention to data provided to them about the performance of the school (eg, NAPLAN results; Year 12 results) and identify areas in which the school is performing relatively poorly or well.

Tests (eg, commercially available reading tests) may be used by some teachers, but generally are not used as part of a whole-school assessment strategy.

An ad hoc approach exists to building staff skills in the analysis, interpretation and use of classroom data.

Software may be used for the analysis of school results, including the performances of priority groups, but analyses generally do not extend to studies of improvement or growth.

School data are presented to staff in meetings, but presentations tend to be 'for information' rather than a trigger for in-depth discussions of teaching practices and school processes. Information about the school's performance is communicated to the school community, but may lack explanation or analysis. There is limited engagement with parents and families around school data.

Low

There is very little evidence of school leaders' practical use of school-wide student outcome data. There is either no annual data collection plan for the school or the plan is being implemented in a minimalist fashion. The school makes little or no use of tests beyond those that the school is required to use.

Teachers do not systematically analyse test and other data for their classes and teachers make little use of data to reflect on their teaching. The school is unable to demonstrate how data have been used in meetings or with parents to analyse and discuss current achievement levels and strategies for improvement.

4. Use of data to inform practice

Key points

- Effective analysis of student data helps teachers identify areas in which students' learning needs may require additional attention and development.
- Data can also help teachers see which students may be struggling to engage with particular learning areas, and understand which students respond better to different teaching approaches in their classroom.
- High-quality assessment practice is crucial for effective data analysis of student outcomes and wellbeing.
- Teachers need access to tools, skills and training to help them interpret and use this data effectively.

Why it matters

The advantages of teachers using data from assessment for formative purposes are well documented¹. In a review by international education experts of the world's top performing systems, a consistent finding was that the best systems all use effective assessment and data to drive improvement: systems cannot improve what they do not measure².

In Australia, equipping teachers to use data effectively can lift students' performance by ensuring continued improvement. However, international studies reveal that many teachers do not feel equipped to use assessment data for formative purposes or at all³. Teachers and principals in New South Wales also identify the effective use of assessment data as an area requiring additional professional development.

Formative assessment occurs when assessment, whether formal (e.g. testing) or informal (e.g. classroom questioning), is primarily intended for, and instrumental in, helping a student attain a higher level of performance. Formative assessment occurs priorⁱ to summative assessment; its purpose is partly to guide future learning for the student. Because the primary purpose of formative assessment is feedback to the learner, it is often ungraded and, by definition, low-stakes. Formative assessment is deemed to be assessment *for* learning.

Summative assessment occurs when assessment is designed to indicate the achievement status or level of performance attained by a student at the end of a course of study or period of time. It is geared towards reporting or certification. Summative assessment is deemed to be assessment *of* learning.

ⁱ Although in some practices, formative judgments contribute to reported results.

Source: G Matters 2006, *Australian Educational Review – Using data to support Learning in schools: Students, teachers, systems*, ACER Press, Canberra.

1 See, for example: P Black and D Wiliam 1998, 'Inside the black box: Raising standards through classroom assessment', *Phi Delta Kappan*, vol.80, no.2; Hattie and Timperley 2007, 'The power of feedback'.

2 Barber and Mourshed 2007, *How the world's best-performing school systems come out on top*, pp.35-36.

3 M Heritage et al, 2009, 'From evidence to action: A seamless process in formative assessment?', *Educational Measurement: Issues and Practice*, vol.28, no.3; M Heritage, B Jones and E White 2010, 'Knowing what to do next: The hard part of formative assessment?' Paper presented at the annual meeting of the American Educational Research Association, 2 May; B Boyle and M Charles 2010, 'Defining ongoing assessment: The effective method for supporting teaching and learning in early years and primary education', *School Leadership and Management Journal* vol.30, no.2; M Gearhart et al, 2006, 'Developing expertise with classroom assessment in K-12 science: Learning to interpret student work', *Educational Assessment*, vol.1.

What the evidence says

When teachers are equipped with the skills to interpret and use data, student outcomes improve

A study by Timperley in 2009 showed that a professional development program for teachers that focused on the interpretation and use of assessment information resulted in student achievement gains accelerating at twice the expected rate. For all schools that focused on writing, the average effect size was 1.20; for reading, 0.92. Gains were found to be greatest for the lowest-performing 20 per cent of students: effect sizes were 2.25 in writing and 1.90 in reading for these students⁴.

A meta-analysis by RAND Corporation found that districts and schools in the US that pursued more complex data-driven decision-making processes were those that allocated valuable time to data analysis or created new structures (for example, study groups) to facilitate it. Time allocated to collaborative data analysis and inquiry has also been shown to assist educators in developing a more complex understanding of how data can contribute to school improvement⁵.

The evidence is still accumulating on this topic. Mandinach argues that there is a shortage of rigorous evidence (such as randomised controlled trials) on the impact of the use of assessment data and improved student outcomes, as practices are still evolving in jurisdictions, making evaluation complicated at this stage⁶.

Good assessment practice is critical for data to inform teaching practice

Historically, assessment data was used to provide information about a student's level of ability, rather than as a source of information for teachers to guide and direct students and to reflect on the effectiveness of their own teaching practice. Formative assessment takes place nearly exclusively in the classroom and is essential to inform teaching that creates more learning⁷. Black and Wiliam describe two specific improvement strategies for teachers: ensure that classroom assessment provides accurate and important information; and give effective feedback to students⁸.

Teachers need to be able to design classroom assessments that are frequent, high-quality and have clear, consistent scoring criteria. To use this data to inform effective teaching practice requires teachers to have deep pedagogical content knowledge and the ability to respond constructively to what the data is telling them, changing their practice where required. For students to benefit from ongoing and constructive assessment, teachers must also provide timely and specific feedback based on that data.

NSW teachers are increasingly focusing on data to improve students' outcomes

There is some evidence that the shift towards training teachers to use data effectively is occurring in New South Wales. Some teachers received training on the effective use of data as part of the National Partnership on Literacy and Numeracy⁹. These teachers reported a greater understanding of data analysis tools and techniques, leading to changes in their classroom practice. For instance, 81 per cent of survey respondents said that this training had led, to a great extent, to more effective classroom teaching of literacy and numeracy.

Surveys of Australian teachers reveal a need for further professional learning and better initial teacher education in using data

The 2013 Staff in Australia's Schools (SiAS) survey reported that 25.7 per cent of primary teachers identified a need for more professional learning in 'making effective use of student assessment information' and 18.8 per cent for 'interpreting achievement reports from national or state-wide assessments'¹⁰. The findings were similar for secondary teachers. Early-career teachers (defined as teachers with less than five years' experience) particularly in primary schools were more likely to report a greater need for further professional learning in these areas than those with more experience.

4 H Timperley 2009, 'Using assessment data for improving teaching practice', Paper presented at the Australian Council for Educational Research Conference, 16-18 August, Perth; see also, H Timperley and J Parr 2009, 'Chain of Influence from policy to practice in the New Zealand literacy strategy', *Research Papers in Education*, vol.24, no.2, pp.135-154.

5 G Ikemoto and J Marsh 2007, *Cutting through the 'data-driven' mantra: Different conceptions of data-driven decision making*, RAND Corporation, Santa Monica; citing also M Lachat 2001, *Data-driven high school reform: The Breaking Ranks model*, Providence, RI, LAB at Brown University.

6 E Mandinach 2012, 'A perfect time for data use: Using data-driven decision making to inform practice', *Educational Psychologist*, vol.47, no.2, pp.71-85.

7 J Arter 2003, 'Assessment for learning: Classroom assessment to improve student achievement and wellbeing', in *Measuring up: Assessment issues for teachers, counsellors, and administrators*, J Wall and G Walz (eds), CAPS Press, U Minnesota, chapter 33.

8 Black and Wiliam 1998, 'Inside the black box: Raising standards through classroom assessment'.

9 T Wyatt and R Carbine 2011, *Evaluation of the take-up and sustainability of new literacy and numeracy practices in NSW schools: Final report of phase 1*, Erebus International, Table 12.

10 P McKenzie et al, 2014, *Staff in Australia's Schools (SiAS) 2013: Main Report on the Survey*, Australian Council for Educational Research, commissioned by the Department of Education, Canberra, Table 6.4, p.74.

Significantly, of the early-career primary teachers surveyed, only 27.2 per cent reported that their pre-service teacher education course was 'helpful' or 'very helpful' for interpreting national or state-wide assessment data, with 34.2 per cent stating that it was 'not helpful'¹¹. Views were more positive regarding preparation for making effective use of student assessment data, with 48.3 per cent finding it 'helpful' or 'very helpful'. Results were similar for secondary teachers.

Principals agreed there is a lack of teacher preparation in this domain, with only 14.3 per cent of primary principals reporting that graduates were 'prepared' or 'very well prepared' to interpret national or state-wide achievement reports and only 23.3 per cent were 'prepared' or 'very well prepared' in making effective use of student assessment information¹². The findings for secondary teacher graduates were slightly more positive.

Implications for teachers and schools

- Data matters to student outcomes – when teachers are able to use and implement assessment data effectively, they can drive improvement in student achievement and wellbeing outcomes.
- Quality data is important – teachers need to be able to design and implement good formative assessment in order to obtain useful data which they can use to adapt and inform their teaching practice.
- School leaders need to encourage whole-of-school focus – school leaders must support teachers' professional learning in effective use of data, and encourage evidence-based teacher practices across the school. This includes promoting discussions about data, supporting use of assessment data to address students' needs, and facilitating opportunities for collaboration within and across schools¹³.

¹¹ McKenzie et al, *SiAS 2013*, Table 8.6, p.93

¹² McKenzie et al, *SiAS 2013*, Table 12.17, p.132

¹³ N Protheroe 2009, 'Improving teaching and learning with data-based decisions: Asking the right questions and acting on the answers', *ERS Spectrum*, vol.19, no.3.